ECAL Integration and Mission Success Tests

PMT calibration and selection

Vibration tests

Thermal and Vacuum tests

Cabling Scheme

Planning

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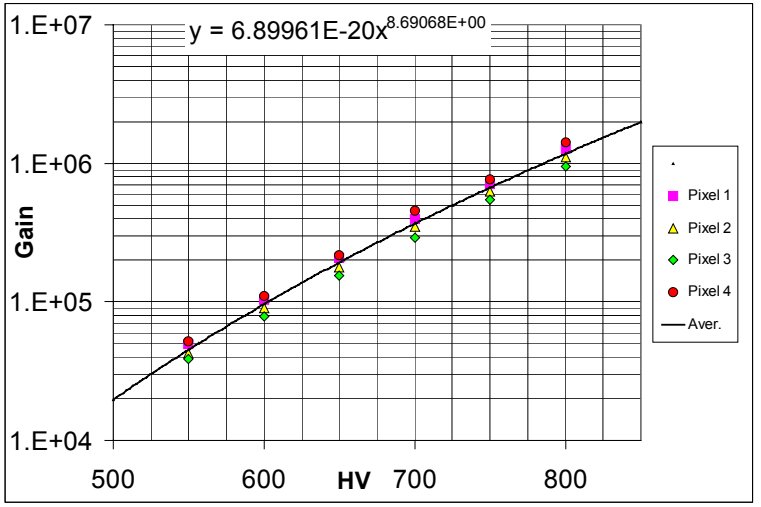
PMT calibration and selection

3*120 PMT's (Annecy, Beijing, Pisa) were calibrated in LAPP by the common method :

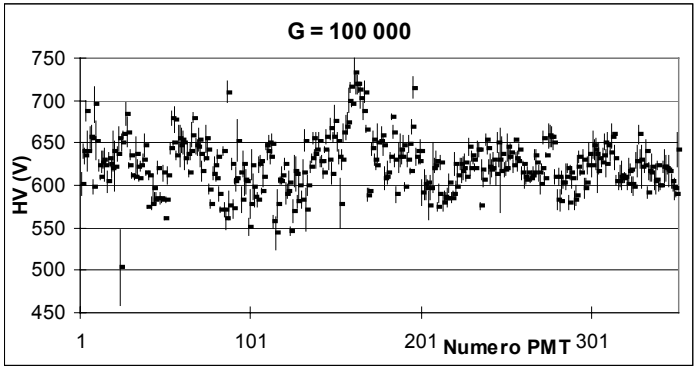
120 in 2002 - validity of the calibration method confirmed during 2002 test beam

2*120 in 2003 - this work is finished

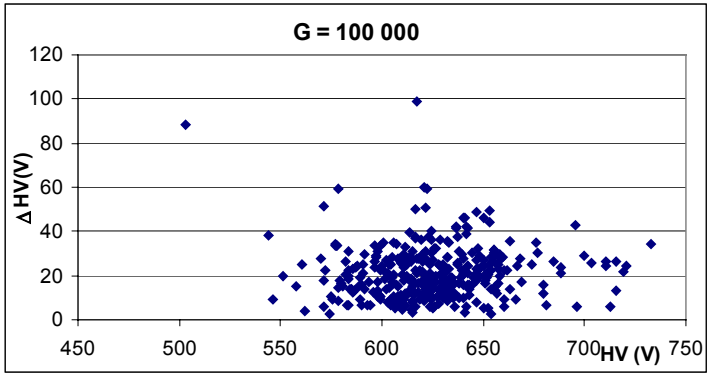
324 final PMT's will be selected (essentially with respect to the uniformity between pixels)



Gain(HV) for the PMT n° MA0280



Distribution of HV for 360 PMT's and for the Gain = 10^5

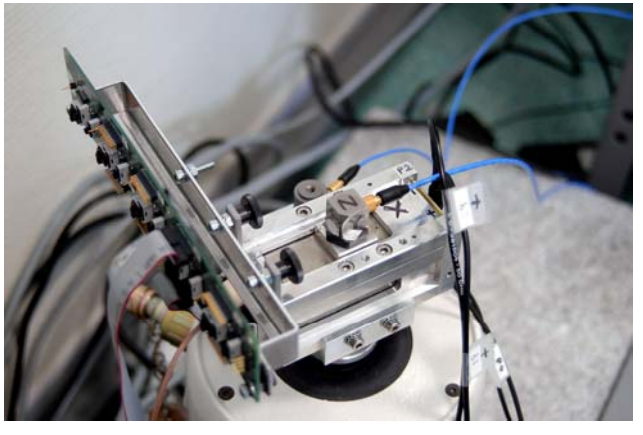


HV max dispersion(pixels) as function of mean HV for Gain = 10^5

Vibration tests for mission success (PMT+EFE)

Preliminary tests were performed in February and July 2003 in Annecy

No damage observed for 3 PMT and EFE vibrated inside the Light Collection Box up to about 6 g_{RMS}



Vibration tests for mission success (ECAL)

Planned in October 2003 in SERMS at Terni

SERMS

Laboratorio per lo **S**tudio degli
Effetti delle **R**adiazioni sui
Materiali per lo **S**pazio

Co-ordination meeting in Terni in May 2003 :

R. Battiston, B.Bertucci, L. Di Masso,, S. Lucidi, P. Santini,
S. Ascani - University of Perugia, SERMS
M.Incagli, F.Pilo - INFN Pisa
W.Yi - MIT
F.Cadoux, R.Kossakowski - LAPP

1. Check of the capability of the SERMS shaker to perform ECAL vibration tests (horizontal and vertical) up to 3,4 g_{RMS}

2. Definition of the sequence of tests

3. Organisation and sharing of responsibilities

4. Set the date of mid October 2003 for tests

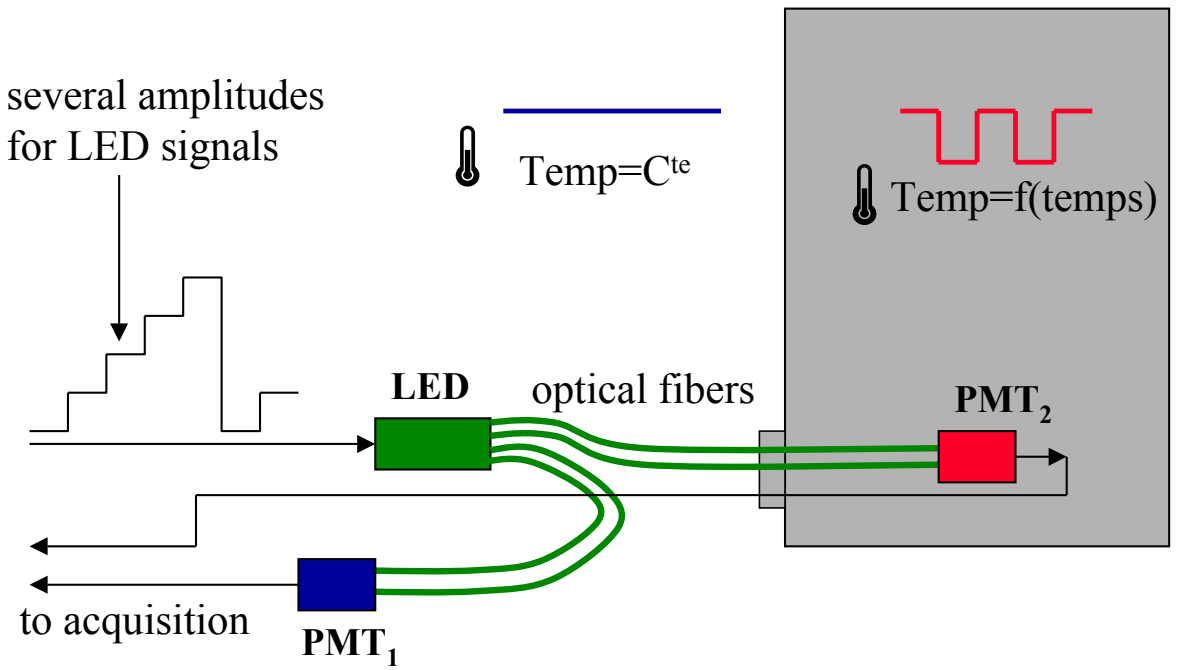
Thermal and Vacuum tests

All PMT's + EFE + EIB set-ups will be cycled in the -40° - +40°(+50°) temperature range under vacuum. Continuous acquisition of PMT signals during the cycling will be done

Vacuum-Thermal Facility at LAPP

Thermal and Vacuum tests

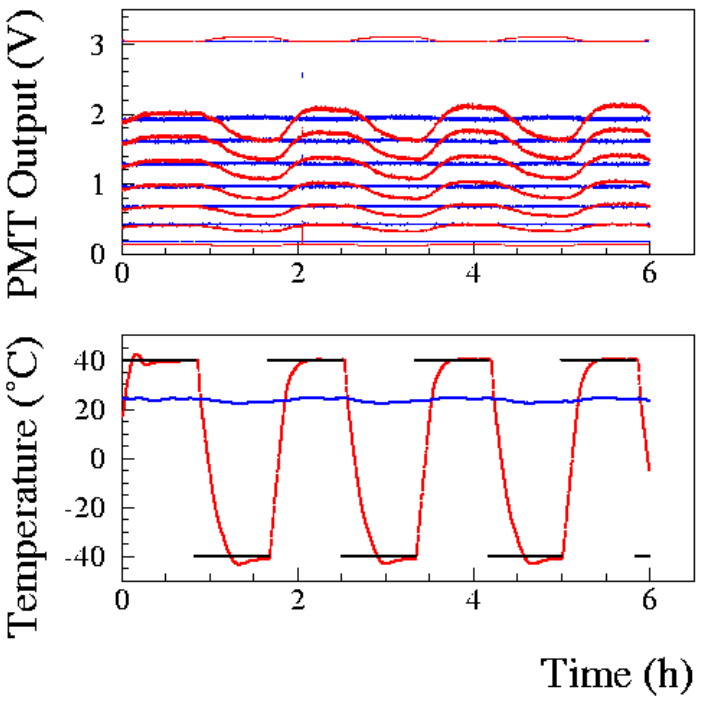
2 PMT's + EFE were cycled in the temperature range -40° +50°.

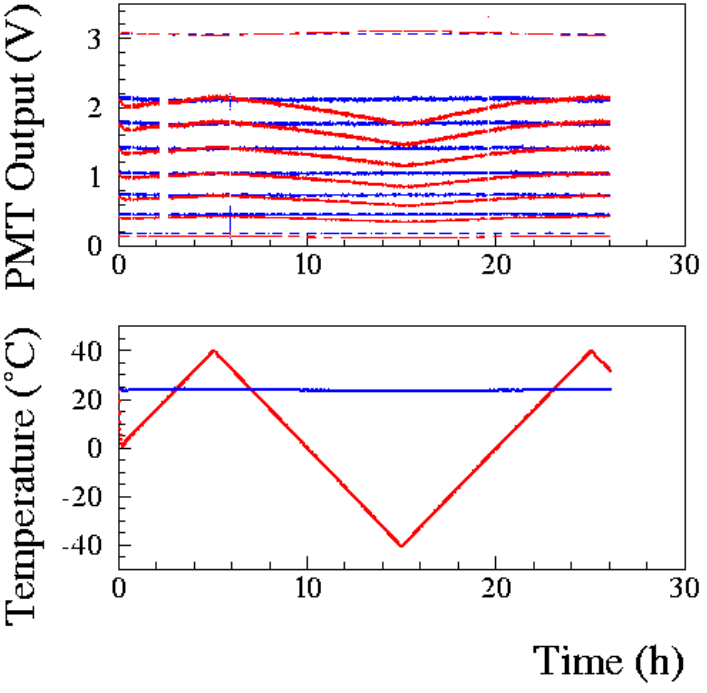


Preliminary Results of Thermal Tests

No damage for PMT, electronics, connections etc.

The variation of the PMT signal of ~ 0,25% /deg



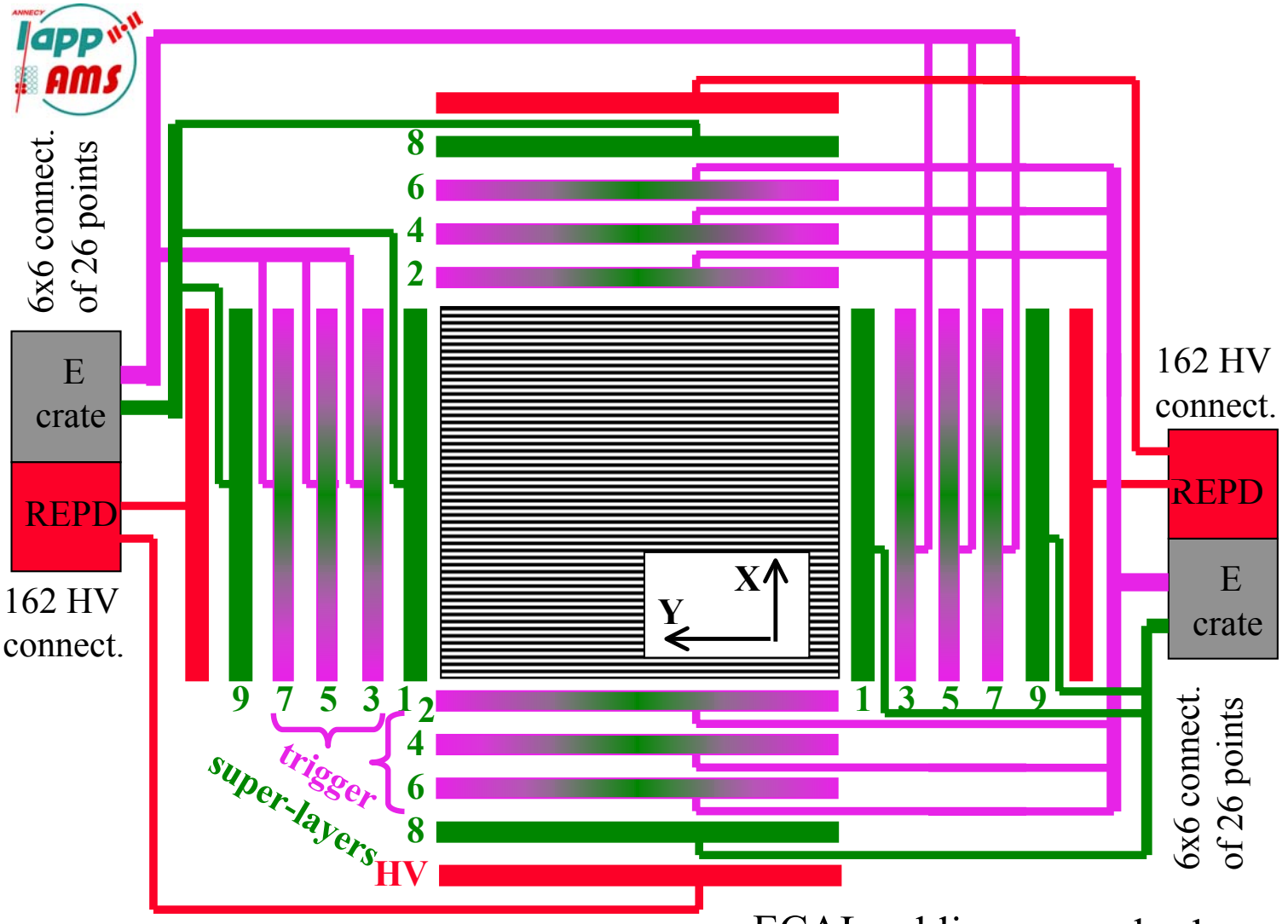


ECAL cabling scheme

324 PMT's+bleeders+EFE
36 EIB cards (9 EFE/EIB)
12 EDR cards (3 EIB/EDR)
2 ETGR cards (one for X and one for Y direction)
2 REPD with a total of 240 HV regulators (1 or 2 PMT/regulator)

Two 26 wire cables going out from each EIB to EDR
(LV supply, data, trigger) - total of 72 cables.
Total of 324 HV cables going out from PMT's to REPD
(162PMT/REPD)

All signals concerning the trigger are route to the EDR,
then send to the EDRG card using crate back-panels.



ECAL cabling general scheme

ECAL cabling scheme

The cable length will be optimized using the mock-up

Planning

PMT calibration

done

Vibration tests in Terni

October 2003

Thermal and Vacuum tests in LAPP

Dec 2003 - Mai 2004

Assembling of the calorimeter in LAPP

April 2004 - July 2004